SEQUENCE LISTING

<110> SHEFFIELD, VAL C.
ALWARD, WALLACE L.M.
STONE, EDWIN M.
NISHIMURA, DARRYL
PATIL, SHIVA

<120> THERAPEUTICS AND DIAGNOSTICS FOR CONGENITAL HEART DISEASE BASED ON A NOVEL HUMAN TRANSCRIPTION FACTOR

<130> IOWA:042USD1

<140> 09/612,809
<141> 2000-07-10

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<170> PatentIn Ver. 2.1

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<213> Homo sapiens

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<213> Homo sapiens

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Ala Gly Gly Gly Tyr Thr Ala Met Pro Ala Pro Met Ser Val Tyr Ser
         35                  40                  45

His Pro Ala His Ala Glu Gln Tyr Pro Gly Gly Met Ala Arg Ala Tyr
     50                  55                  60

Gly Pro Tyr Thr Pro Gln Pro Gln Pro Lys Asp Met Val Lys Pro Pro
 65                  70                  75                  80

Tyr Ser Tyr Ile Ala Leu Ile Thr Met Ala Ile Gln Asn Ala Pro Asp
                 85                  90                  95

Lys Lys Ile Thr Leu Asn Gly Ile Tyr Gln Phe Ile Met Asp Arg Phe
            100                 105                 110

Pro Phe Tyr Arg Asp Asn Lys Gln Gly Trp Gln Asn Ser Ile Arg His
        115                 120                 125

Asn Leu Ser Leu Asn Glu Cys Phe Val Lys Val Pro Arg Asp Asp Lys
    130                 135                 140

Lys Pro Gly Lys Gly Ser Tyr Trp Thr Leu Asp Pro Asp Ser Tyr Asn
145                 150                 155                 160

Met Phe Glu Asn Gly Ser Phe Leu Arg Arg Arg Arg Arg Phe Lys Lys
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Lys Asp Ala Val Lys Asp Lys Glu Glu Lys Asp Arg Leu His Leu Lys
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Asp Ile Lys Thr Glu Asn Gly Thr Cys Pro Ser Pro Pro Gln Pro Leu
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Ile Glu Ser Pro Asp Ser Ser Ser Ser Ser Leu Ser Ser Gly Ser Ser
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Pro Pro Gly Ser Leu Pro Ser Ala Arg Pro Leu Ser Leu Asp Gly Ala
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Asp Ser Ala Pro Pro Pro Pro Ala Pro Ser Ala Pro Pro Pro His His
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Leu Pro Pro Val Thr Ser Ser Ser Ser Ser Ser Leu Ser His Gly Gly
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Gly Gly Gly Gly Gly Gly Gly Gly Gln Glu Ala Gly His His Pro Ala
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Ala His Gln Gly Arg Leu Thr Ser Trp Tyr Leu Asn Gln Ala Gly Gly
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Asp Leu Gly His Leu Ala Ser Ala Ala Ala Ala Ala Ala Ala Ala Gly
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Ser Gln Arg Ile Gly Leu Asn Asn Ser Pro Val Asn Gly Asn Ser Ser
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Cys Gln Met Ala Phe Pro Ser Ser Gln Ser Leu Tyr Arg Thr Ser Gly
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<212> DNA
<213> Homo sapiens

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<210> 4
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
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Met Ala Ile Gln Asn Ala Pro Asp Lys Lys Ile Thr Leu Asn Gly Ile
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Tyr Gln Phe Ile Met Asp Arg Phe Pro Phe Tyr Arg Asp Asn Lys Gln
        35                  40                  45

Gly Trp Gln Asn Ser Ile Arg His Asn Leu Ser Leu Asn Glu Cys Phe
    50                  55                  60

Val Lys Val Pro Arg Asp Asp Lys Lys Pro Gly Lys Gly Ser Tyr Trp
65                  70                  75                  80

Thr Leu Asp Pro Asp Ser Tyr Asn Met Phe Glu Asn Gly Ser Phe Leu
                85                  90                  95

Arg Arg Arg Arg Arg Phe Lys Lys Lys Asp
            100                 105
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<210> 5
<211> 106
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic Peptide

<400> 5

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Pro Lys Asp Leu Val Lys Pro Pro Tyr Ser Tyr Ile Ala Leu Ile Thr
  1               5                  10                  15

Met Ala Ile Gln Asn Ala Pro Glu Lys Lys Ile Thr Leu Asn Gly Ile
            20                  25                  30

Tyr Gln Phe Ile Met Asp Arg Phe Pro Phe Tyr Arg Glu Asn Lys Gln
        35                  40                  45

Gly Trp Gln Asn Ser Ile Arg His Asn Leu Ser Leu Asn Glu Cys Phe
    50                  55                  60

Val Lys Val Pro Arg Asp Asp Lys Lys Pro Gly Lys Gly Ser Tyr Trp
65                  70                  75                  80

Thr Leu Asp Pro Asp Ser Tyr Asn Met Phe Glu Asn Gly Ser Phe Leu
                85                  90                  95

Arg Arg Arg Arg Arg Phe Lys Lys Lys Asp
            100                 105
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<210> 6
<211> 106
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
Peptide

<400> 6
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1 5 10 15

Met Ala Ile Gln Ser Ser Pro Gly Gln Arg Ala Thr Leu Ser Gly Ile
20 25 30

Tyr Arg Val Ile Met Gly Arg Phe Ala Phe Tyr Arg His Asn Arg Pro
35 40 45

Gly Trp Gln Asn Ser Ile Arg His Asn Leu Ser Leu Asn Glu Cys Phe
50 55 60

Val Lys Val Pro Arg Asp Asp Arg Lys Pro Gly Lys Gly Ser Tyr Trp
65 70 75 80

Thr Leu Asp Pro Asp Cys His Asp Met Phe Glu His Gly Ser Phe Leu
85 90 95

Arg Arg Arg Arg Arg Phe Thr Arg Gln Thr
100 105

<210> 7
<211> 106
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic
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1 5 10 15

Met Ala Ile Gln Asp Ala Pro Glu Gln Arg Val Thr Leu Asn Gly Ile
20 25 30

Tyr Gln Phe Ile Met Asp Arg Phe Pro Phe Tyr His Asp Asn Arg Gln
35 40 45

Gly Trp Gln Asn Ser Ile Arg His Asn Leu Ser Leu Asn Asp Cys Phe
50 55 60

Val Lys Val Pro Arg Glu Lys Gly Arg Pro Gly Lys Gly Ser Tyr Trp
65 70 75 80

Thr Leu Asp Pro Arg Cys Leu Asp Met Phe Glu Asn Gly Asn Tyr Arg
85 90 95

Arg Arg Lys Arg Lys Pro Lys Pro Gly Pro
100 105

<210> 8
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Peptide

<400> 8
Pro Leu Gln Arg Gly Lys Pro Pro Tyr Ser Tyr Ile Ala Leu Ile Ala
1 5 10 15

Met Ala Leu Ala His Ala Pro Gly Arg Arg Leu Thr Leu Ala Ala Ile
20 25 30

Tyr Arg Phe Ile Thr Glu Arg Phe Ala Phe Tyr Arg Asp Ser Pro Arg
35 40 45

Lys Trp Gln Asn Ser Ile Arg His Asn Leu Thr Leu Asn Asp Cys Phe
50 55 60

Val Lys Val Pro Arg Glu Pro Gly Asn Pro Gly Lys Gly Asn Tyr Trp
65 70 75 80

Thr Leu Asp Pro Ala Ala Ala Asp Met Phe Asp Asn Gly Ser Phe Leu
85 90 95

Pro Arg Arg Lys Arg Phe Lys Arg Ala Glu
100 105

<210> 9
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Peptide

<400> 9
Pro Leu Gln Arg Gly Lys Pro Pro Tyr Ser Tyr Ile Ala Leu Ile Ala
1 5 10 15

Met Ala Ile Ala His Ala Pro Glu Arg Arg Leu Thr Leu Gly Gly Ile
20 25 30

Tyr Lys Phe Ile Thr Glu Arg Phe Pro Phe Tyr Arg Asp Asn Pro Lys
35 40 45

Lys Trp Gln Asn Ser Ile Arg His Asn Leu Thr Leu Asn Asp Cys Phe
50 55 60

Leu Lys Ile Pro Arg Glu Ala Gly Arg Pro Gly Lys Gly Asn Tyr Trp
65 70 75 80

Ala Leu Asp Pro Asn Ala Glu Asp Met Phe Glu Ser Gly Ser Phe Leu
85 90 95

Arg Arg Arg Lys Arg Phe Lys Arg Ser Asp
100 105

<210> 10
<211> 106
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic Peptide

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1 5 10 15

Met Ala Ile Leu Gln Ser Pro His Lys Arg Leu Thr Leu Ser Gly Ile
20 25 30

Cys Ala Phe Ile Ser Asp Arg Phe Pro Tyr Tyr Arg Arg Lys Glu Pro
35 40 45

Gly Trp Gln Asn Ser Ile Arg His Asn Leu Ser Leu Asn Asp Cys Phe
50 55 60

Val Lys Ile Pro Arg Glu Pro Gly Arg Pro Gly Lys Gly Asn Tyr Trp
65 70 75 80

Ser Leu Asp Pro Ala Ser Gln Asp Met Phe Asp Asn Gly Ser Phe Leu
85 90 95

Arg Arg Arg Lys Arg Phe Gln Arg Asn Gln
100 105

<210> 11
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

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1 5 10 15

Met Ala Ile Leu Gln Ser Pro Lys Lys Arg Leu Thr Leu Ser Glu Ile
20 25 30

Cys Glu Phe Ile Ser Gly Arg Phe Pro Tyr Tyr Arg Glu Lys Phe Pro

35 40 45

Ala Trp Gln Asn Ser Ile Arg His Asn Leu Ser Leu Asn Asp Cys Phe
50 55 60

Val Lys Ile Pro Arg Glu Pro Gly Asn Pro Gly Lys Gly Asn Tyr Trp
65 70 75 80

Thr Leu Asp Pro Glu Ser Ala Asp Met Phe Asp Asn Gly Ser Phe Leu
85 90 95

Arg Arg Arg Lys Arg Phe Lys Arg Gln Pro
100 105

<210> 12
<211> 106
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic Peptide

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1 5 10 15

Met Ala Ile Leu Gln Ser Pro Lys Lys Arg Leu Thr Leu Ser Glu Ile
20 25 30

Cys Glu Phe Ile Ser Gly Arg Phe Pro Tyr Tyr Arg Glu Lys Phe Pro
35 40 45

Ala Trp Gln Asn Ser Ile Arg His Asn Leu Ser Leu Asn Asp Cys Phe
50 55 60

Val Lys Ile Pro Arg Glu Pro Gly Asn Pro Gly Lys Gly Asn Tyr Trp
65 70 75 80

Thr Leu Asp Pro Glu Ser Ala Asp Met Phe Asp Asn Gly Ser Phe Leu
85 90 95

Arg Arg Lys Arg Arg Phe Lys Arg Gln Pro
100 105

<210> 13
<211> 106
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic Peptide

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            20                  25                  30

Tyr Gln Phe Leu Gln Ser Arg Phe Pro Phe Phe Arg Gly Ser Tyr Gln
        35                  40                  45

Gly Trp Lys Asn Ser Val Arg His Asn Leu Ser Leu Asn Glu Cys Phe
    50                  55                  60

Ile Lys Leu Pro Lys Gly Leu Gly Arg Pro Gly Lys Gly His Tyr Trp
65                  70                  75                  80

Thr Ile Asp Pro Ala Ser Glu Phe Met Phe Glu Asn Gly Ser Phe Arg
                85                  90                  95

Arg Arg Arg Arg Gly Phe Arg Arg Lys Cys
            100                 105
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<210> 14
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

<400> 14

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Met Ala Ile Gln Ser Ser Pro Ser Lys Arg Leu Thr Leu Ser Glu Ile
            20                  25                  30

Tyr Gln Phe Leu Gln Ala Arg Phe Pro Phe Phe Arg Gly Ala Tyr Gln
        35                  40                  45

Gly Trp Lys Asn Ser Val Arg His Asn Leu Ser Leu Asn Glu Cys Phe
    50                  55                  60

Ile Lys Leu Pro Lys Gly Leu Gly Arg Pro Gly Lys Gly His Tyr Trp
65                  70                  75                  80

Thr Ile Asp Pro Ala Ser Glu Phe Met Phe Glu Asn Gly Ser Phe Arg
                85                  90                  95

Arg Arg Arg Arg Gly Phe Arg Arg Lys Cys
            100                 105
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<210> 15
<211> 106
<212> PRT

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Peptide

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1 5 10 15

Met Ala Ile Arg Gln Ser Pro Glu Lys Arg Leu Thr Leu Asn Gly Ile
20 25 30

Tyr Glu Phe Ile Met Lys Asn Phe Pro Tyr Tyr Arg Glu Asn Lys Gln
35 40 45

Gly Trp Gln Asn Ser Ile Arg His Asn Leu Ser Leu Asn Lys Cys Phe
50 55 60

Val Lys Val Pro Arg His Tyr Asp Asp Pro Gly Lys Gly Asn Tyr Trp
65 70 75 80

Met Leu Asp Pro Ser Ser Tyr Asp Asp Val Ile Gly Gly Thr Thr Gly
85 90 95

Lys Leu Arg Arg Arg Ser Thr Thr Ser Pro
100 105

<210> 16
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Peptide

<400> 16
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1 5 10 15

Met Ala Met Arg Gln Ser Pro Glu Lys Arg Leu Thr Leu Asn Gly Ile
20 25 30

Tyr Glu Phe Ile Met Lys Asn Phe Pro Tyr Tyr Arg Glu Asn Lys Gln
35 40 45

Gly Trp Gln Asn Ser Ile Arg His Asn Leu Ser Leu Asn Lys Cys Phe
50 55 60

Val Lys Val Pro Arg His Tyr Asp Asp Pro Gly Lys Gly Asn Tyr Trp
65 70 75 80

Met Leu Asp Pro Ser Ser Tyr Asp Asp Val Ile Gly Gly Thr Thr Gly
85 90 95

Lys Leu Arg Arg Ser Thr Thr Ser Pro Ala
100 105

<210> 17
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

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1 5 10 15

Met Ala Ile Arg Gln Ser Pro Glu Lys Arg Leu Thr Leu Asn Gly Ile
20 25 30

Tyr Glu Phe Ile Met Lys Asn Phe Pro Tyr Tyr Arg Glu Asn Lys Gln
35 40 45

Gly Trp His Asn Ser Ile Arg Asp Asn Leu Ser Leu Asn Lys Cys Phe
50 55 60

Val Lys Val Pro Arg His Tyr Asp Asp Pro Gly Lys Gly Asn Tyr Trp
65 70 75 80

Met Leu Asp Pro Ser Ser Asp Asp Val Phe Ile Gly Gly Thr Thr Gly
85 90 95

Lys Leu Arg Arg Arg Ser Thr Thr Ser Arg
100 105

<210> 18
<211> 76
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

<400> 18
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1 5 10 15

Met Ala Ile His Gly Ala Pro Asp Lys Arg Leu Thr Leu Ser Gln Ile
20 25 30

Tyr Gln Tyr Val Ala Asp Asn Phe Pro Phe Tyr Asn Lys Ser Lys Ala
35 40 45

Gly Trp Gln Asn Ser Ile Arg His Asn Leu Ser Leu Asn Asp Cys Phe
50 55 60

Lys Lys Val Pro Arg Asp Glu Asp Asp Pro Gly Lys
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<210> 19
<211> 106
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

<400> 19
Thr Asn Pro His Val Lys Pro Pro Tyr Ser Tyr Ala Thr Leu Ile Cys
1 5 10 15

Met Ala Met Gln Ala Ser Lys Ala Thr Lys Ile Thr Leu Ser Ala Ile
20 25 30

Tyr Lys Trp Ile Thr Asp Asn Phe Cys Tyr Phe Arg His Ala Asp Pro
35 40 45

Thr Trp Gln Asn Ser Ile Arg His Asn Leu Ser Leu Asn Lys Cys Phe
50 55 60

Ile Lys Val Pro Arg Glu Lys Asp Glu Pro Gly Lys Gly Gly Phe Trp
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Arg Ile Asp Pro Gln Tyr Ala Glu Arg Leu Leu Ser Gly Ala Phe Lys
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<211> 98
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic Peptide

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20 25 30

Lys Ser Val Pro Tyr Phe Lys Asp Lys Gly Asp Ser Asn Ser Ser Ala
35 40 45

Gly Trp Gln Lys Ser Ile Arg His Asn Leu Ser Leu His Ser Lys Phe

50 55 60

Ile Arg Val Gln Asn Glu Gly Thr Gly Lys Ser Ser Trp Trp Met Leu
65 70 75 80

Asn Pro Glu Gly Gly Lys Ser Gly Lys Ser Pro Arg Arg Ala Ala Ser
85 90 95

Met Asp